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EXAMINER	
TRAN, CON P	

ART UNIT	PAPER NUMBER
2644	8

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/559,901	PURYEAR, MARTIN G.	
	Examiner	Art Unit	
	Con P. Tran	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 April 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-69* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31,33-49 and 51-68* is/are rejected.

7)☒ Claim(s) *32 and 50* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4,6,7* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: On page 31, line 15, the reference numeral "430" should be "440".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1-7, 11-13, 15-23, 28-31, 33-36, 48-49, 51-53, and 59-67** are rejected under 35 U.S.C. 102(b) as being anticipated by Shaw et al. U.S. Patent 5,815,689 (hereinafter, "Shaw").

Regarding **claim 1**, Shaw teaches a method and computer program product for synchronizing the processing of multiple data streams and matching disparate processing rates using a standardized clock mechanism in which interconnected kernel mode software drivers (col. 3, lines 55-60) allowing unlimited extensibility (col. 6, lines 20-23), comprising:

a plurality of modules coupled together (kernel mode filters, col. 7, lines 59-67; the processing components 214, 220, and 210-Fig. 11A, col. 28, line 9-46), in a module

graph (filter graph topology, col. 7, lines 59-67; the controlling agent 170-Fig. 11B, col. 25, lines 23-54) implemented in kernel-mode, each of the modules performing an operation in the processing of the audio messages (the processing components are for processing the audio messages, see Fig. 2, col. 7, lines 15-21);

and a plurality of additional modules (the reference 216, 223-Fig. 11A) that can be added to the module graph (filter graph topology, col. 7, lines 59-67), wherein each of the plurality of additional modules is coupled to one of the plurality of modules (the reference 216 couples to the processing component 214, and the reference 223 couples to the processing component 210-Fig. 11A).

Regarding **claim 2**, Shaw in Figure 2 teaches the audio messages include audio data.

Regarding **claims 3, and 19**, Shaw in Figure 2 teaches the audio messages include control information, col. 9, lines 32-37.

Regarding **claim 4**, Shaw teaches a graph building functionality coupled to the plurality of modules, to add selected ones of the plurality of additional modules to the module graph, col. 2, line 63 to col. 3, line 15.

Regarding **claim 5**, wherein one of the plurality of modules comprises a packer module (Shaw teaches the disk drive 48-Figs. 2, and 6; col. 11, lines 16-34, and col. 16,

line 58-65) to communicate the audio messages to one or more of a plurality of different applications executing in user-mode.

Regarding **claim 6**, wherein one of the plurality of modules comprises an unpacker module (Shaw teaches the reader driver 50-Figs. 2, and 6; col. 11, lines 16-34, and col. 16, lines 58-65) to receive the audio messages from one or more of a plurality of different applications executing in user-mode.

Regarding **claims 7, and 22**, wherein each of the plurality of modules in the module graph and each of the plurality of additional modules that is added to the module graph is configured with a pointer to a common reference clock (see Fig. 14, col. 36, line 22 to col. 38, line 65).

Regarding **claims 11, and 18,** Shaw discloses the audio data comprises MIDI, col. 9, lines 33-37.

Regarding **claim 12,** wherein selected ones of the plurality of additional modules are added to the module graph in response to user inputs identifying desired audio processing functionality (see Fig. 11B, col. 29, lines 12-34).

Regarding **claim 13,** the claim has similar limitations as claim 1. Therefore, it is rejected under Shaw for the same reasons set forth in the rejection of claim 1.

Regarding **claim 14,** Shaw discloses adding additional modules (allocated buffer frame) from a module library (disk drive 262, Fig. 12) to the module graph (filter graph topology, col. 7, lines 59-67; col. 34, lines 51-66)

Regarding **claim 15,** Shaw discloses the connected outputs 226, 230, and 236-Fig. 11A of the plurality of modules.

Regarding **claim 16,** wherein the configuring comprises invoking a ConnectOutput interface (the interface 226-Fig. 11A) on one of the plurality of modules (the source 214-Fig. 11A) to identify another of the plurality of modules (the transform component 220) that output from the one module is to be forwarded to during processing of the audio data.

Regarding **claim 17,** Shaw teaches a programmed algorithm causes a plurality of modules, to add selected ones of the plurality of additional modules to perform in response to input received from an application in user mode-Fig. 2.

Regarding **claim 19,** Shaw teaches a programmed algorithm causes a plurality of modules, to add selected ones of the plurality of additional modules to perform in response to input received from an application in user mode-Fig. 2.

Regarding **claim 20,** Shaw teaches the managing of volume change, col. 5, and lines 56-61.

Regarding **claim 23,** a source module 238-Fig. 11B performs the acts in kernel mode.

Regarding **claim 28**, Shaw teaches a method and computer program product for synchronizing the processing of multiple data streams and matching disparate processing rates using a standardized clock mechanism in which interconnected kernel mode software drivers (col. 3, lines 55-60) allowing unlimited extensibility (col. 6, lines 20-23), comprising:

a presentation time portion indicating when audio data is to be rendered (Fig. 14 col. 37, lines 6-20);

a data portion (the buffer 224a-Fig.11A) that can include audio data or a pointer to a chain of additional data structures (the component 220, and 210-Fig. 11A) that include the audio data; and

a flag portion (col. 5, line 55 – col. 6, line 2) indicating to a kernel-mode transform filter whether the data portion includes the pointer to the chain of additional data structures (col. 31, table 3).

Regarding **claim 29**, wherein the data structure further comprises a structure byte count portion (see file alignment, table 3, col.31) that identifies the size of the data structure.

Regarding **claim 30**, wherein the data structure further comprises an event (file alignment, table 3, col. 31) byte count portion that identifies a number of data bytes that are referred to in the data portion.

Regarding **claim 31**, wherein the data structure further comprises a channel group portion (the interface channel 226-Fig. 11A) that identifies which of a plurality of channel groups the data identified in the data portion corresponds to.

Regarding **claim 33**, wherein the data structure further comprises a byte position portion (see the boundary of file alignment, table 3, col. 31) including an identifier of where the data structure is situated among a plurality of data structures received from an application.

Regarding **claim 34**, wherein the data structure further comprises a next event portion (see col. 24-line 60 to col. 25-line 9) including an identifier of a next data structure in a chain of data structures.

Regarding **claim 35**, the data portion can further include a pointer to a data buffer (the data portion from the source 214 can include a pointer to the data buffer 224a-Fig. 11A);

and the flag portion indicates whether the data portion includes either the pointer to the chain of additional data structures or one of either the audio data or the pointer to the data buffer (see col. 16-line 66 to col. 17-line 8).

Regarding **claim 36**, the claim has similar limitations as claim 30. Therefore, it is rejected under Shaw for the same reasons set forth in the rejection of claim 30.

Regarding **claim 48,** Shaw teaches a method and computer program product for synchronizing the processing of multiple data streams and matching disparate processing rates using a standardized clock mechanism in which interconnected kernel mode software drivers (col. 3, lines 55-60) allowing unlimited extensibility (col. 6, lines 20-23), comprising:

maintaining a pool of memory (the source processing component 214-Fig. 11A maintains the availability of 224a buffers, col. 28, lines 9-46) available for allocation to a plurality of transform filters (in order to allocate frames of data by arrow 226 to transform filter 220, col. 28, lines 38-63) executing at a privileged level;

allocating a portion of the pool of memory (the component 214 allocates the buffer frame 224a for storing audio data) available for allocation to a plurality of transform filters to use to store audio data (col. 28, lines 38-47);

and returning the allocated portion to the pool of memory after the plurality of transform filters have finished processing the audio data (the processing component 214-Fig. 11A returns the data to the existing buffer frame when finished transferring data, col. 28, line 9-19).

Regarding **claim 49,** Shaw discloses the operation in the kernel mode-Fig. 11B.

Regarding **claim 51,** the buffer frame 224a comprises a data buffer to store a plurality of audio data messages.

Regarding **claims 52-53,** Shaw discloses other processing components such as 220, 210-Fig.11A to perform acts including requesting additional memory such as 224b, 224c-Fig. 11A, or non-paged memory from the memory manager 216 -Fig. 11A, col. 9-63.

Regarding **claim 59**, Shaw teaches a method and computer program product for synchronizing the processing of multiple data streams and matching disparate processing rates using a standardized clock mechanism in which interconnected kernel mode software drivers (col. 3, lines 55-60) allowing unlimited extensibility (col. 6, lines 20-23), comprising:

a ConnectOutput interface (the interface 228-Fig.11A, col. 28, line 47- col. 29 line 11) to allow identification to the transform filter (the transform filter 220-Fig.11A) of a

next transform filter (the identification of the filter 224a) in a transform filter graph (the transform filter graph created by the controlling agent 170-Fig. 11B, col. 29, lines 47-49) to which audio data packets should be communicated by the transform filter (the audio data packets in the frame format, col. 29, lines 23-34); and

a PutMessage interface (the interface 230-Fig. 11A) to allow the audio data packets to be communicated to the next transform filter (the filter 224b, col. 28, line 47-col. 29 line 11).

Regarding **claim 60,** wherein the transform filter further causes the one or more processors to implement a SetState interface to allow a state of the transform filter to be set, including a run state and a stop state (see col. 19, table 2).

Regarding **claim 61**, wherein the transform filter further causes the one or more processors to implement a DisconnectOutput interface (the interface 230-Fig. 11A) to allow a previously identified next transform filter to be changed.

Regarding **claim 62**, wherein the transform filter further causes the one or more processors to implement a SetParameters interface (the interface 228-Fig. 11A, col. 19, table 1-data intersection) to allow operational parameters of the transform filter to be set.

Regarding **claim 63**, wherein the transform filter further causes the one or more processors to implement a GetParameters filter to allow operational parameters previously sent to the transform filter to be retrieved (see col. 30-line 34-50).

Regarding **claim 64**, wherein the transform filter (the filter 244-Fig. 11B) further causes the one or more processors to implement a GetMessage interface to allow other transform filters (the buffers 224a-Fig. 11A) in the transform filter graph (the controlling agent 170-Fig. 11B) to obtain data structures for the audio data packets.

Regarding **claims 65-66**, wherein the transform filter (the component 220-Fig. 11A) further causes the one or more processors to implement a GetBufferSize interface (the interface 226-Fig. 11A) to allow other transform filters in the transform filter graph (the controlling agent 170-Fig. 11B) to obtain a size of data buffers (the buffer 224a) allocated by the transform filter.

Regarding **claim 67,** Shaw further teaches wherein the transform filter further causes the one or more processors to implement a PutBuffer interface (the interface 226-Fig. 11A) to allow other transform filters to return data buffers to a memory pool for re-allocation (allocation pool type, col. 33, line 61 –col. 34, line 9).

4. **Claims 37-47, and 54-58** are rejected under 35 U.S.C. 102(e) as being anticipated by Stoltz et al. U.S. Patent 6,405,255 (hereinafter, "Stoltz").

Regarding **claim 37,** Stoltz discloses mixing and splitting multiple independent audio data streams in kernel space.

receiving a data packet (the audio server 212-Fig. 4A receives a data packet 500, which is a portion of audio data) including a pointer (monitoring mechanism)to a chain of additional data packets that include audio data (col. 4-line 12 to col. 5-line 45).

Regarding **claim 38,** the audio server 212-Fig. 4A inherently caries out a programmed algorithm on each of the additional data packets.

Regarding **claim 39,** the audio server 212-Fig. 4A monitors and processes the audio data packet, and capable of detecting the flag included in the data packet.

Regarding **claim 40,** the computer 200-Fig. 2 includes memory 204 containing a computer program to perform the method of processing audio data.

Regarding **claims 41-43,** these claims have similar limitations as claims 37, 39-40, respectively. Therefore, they are rejected under Stoltz for the same reasons set forth in the rejection of claims 37, 39-40.

Regarding **claim 44,** Stoltz discloses mixing and splitting multiple independent audio data streams in kernel space.

a first module (the audio device driver 214-Fig. 2, col.3, lines 1-52) implemented in kernel-mode (kernel mode 210-Fig. 2) and coupled to receive audio data from hardware (receiving audio data from the hardware of audio device 216-Fig. 2);

a second module (the audio server 212-Fig. 2) implemented in kernel mode and coupled to communicate processed audio data to an application (an application from audio apps. 215(1)-215(N)) executing in user-mode (user mode 208-Fig. 2); and

a third module (the dataflow checker 213-Fig. 2), implemented in kernel-mode, to receive the audio data from the first module, process the audio data, and communicate the processed audio data to the second module.

Regarding **claim 45,** the module 214-Fig. 2 processes the audio data before forwarding the audio data to the second module 212-Fig. 2.

Regarding **claim 46,** the module 214-Fig. 2 processes the audio data with its audio device driver, which enables obtaining a data packet structure into which the audio data can be placed.

Regarding **claim 47,** the data queues 217-Fig. 2 are equivalent to the claimed additional modules, situated between the first and third modules, to further process the audio data.

Regarding **claim 54,** Stoltz discloses mixing and splitting multiple independent audio data streams in kernel space.

receiving, from a software component (the memory 204-Fig. 2 receives instructions from the computer 200), an indication of a next module (an indication in which one of audio app. modules 215(1-N)) in a module graph (of the manager 219-Fig. 2) to which the module is to output data (that one of the audio application modules is to output data);

and receiving, from the software component, a state identifier indicating that the module is to begin processing data (the CPU of the computer 200 inherently receives an acknowledgement indicating the audio application module is to begin processing data).

Regarding **claim 55,** the instructions should include parameters identifying how the module is to process the audio data.

Regarding **claim 56**, wherein the instruction is executing in kernel-mode 210-Fig. 2.

Regarding **claim 57,** the CPU of the computer 200 should receive a request from instructions via a programmed algorithm for current parameters identifying how the module is to process the audio data, and returning those parameters back when the requested operation executed.

Regarding **claim 58,** a computer program stored from memory of the computer 200-Fig. 2 is executed to process the audio data.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. **Claims 24-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Shaw et al. U.S. Patent 5,815,689 (hereinafter, "Shaw").

Regarding **claim 24**, Shaw teaches a method and computer program product for synchronizing the processing of multiple data streams and matching disparate processing rates using a standardized clock mechanism.

a plurality of modules (a plurality of filters 354, 358, 344-Fig. 15B coupled together, col. 39-line 57 to col. 45-line 26) that can be coupled in various combinations to process (to render audio at 364-Fig 15b), at a privileged level, audio data;

and a graph builder, communicatively coupled to the plurality of modules (a graph building functionality, col. 2-line 63 to col. 3-line 15).

Shaw, however, does not teach the graph builder is employed to connect together selected ones of the plurality of modules to process the audio data in a particular manner.

One skilled in the art would recognize the advantage of coupling the graph builder to Shaw's filters for processing the audio data.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to interconnect the graph building functionality to the filters of Shaw such that to provide efficient audio data processing.

Regarding **claim 25**, Shaw teaches the filters level comprises a kernel mode, see Figure 15B.

Regarding **claim 26**, in Shaw the process to render the audio comprises user mode, see Figure 15B.

Regarding **claim 27**, in Shaw the graph building functionality is capable of being executed at the privileged level.

7. **Claims 8-10, and 68** are rejected under 35 U.S.C. 103(a) as being unpatentable over Shaw et al. U.S. Patent 5,815,689 (hereinafter, "Shaw") in view of Tamura U.S. Patent 6,184,455.

Regarding **claim 8**, Shaw teaches the computer program product as claimed of claim 1. Shaw further teaches wherein one of the plurality of modules is a sequences module (i.e., clock mechanism) to reorder the audio messages by a timestamp corresponding to the messages (Figs. 16A, 16B, 16C; col. 9, lines 15-22; col. 37, lines 6-22). However Shaw does not explicitly disclose to delay forwarding the audio messages to another module in the module graph until an appropriate time.

Tamura teaches a task is created by executing a CREATE instruction, and the created task is placed in a "ready" state and then put in a queue (i.e. delay) until being placed in a "running" state (col. 25, lines 34-59).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the delay operation of Tamura teaching with the computer program product of Shaw for purpose of preventing occurrence of noise, as suggested by Chen in column 16, line 1.

Regarding **claim 9**, Shaw in view of Tamura teaches putting the task in a predetermined priority order (i.e., prior time of presentation; see Tamura col. 25, lines 36-40).

Regarding **claim 10**, Shaw in view of Tamura teaches the amount of time is identified by master clock (see Shaw Fig. 15B, col. 8, lines 13-22).

Regarding **claim 68,** this claim has similar limitations as claim 8. Therefore, it is rejected under Shaw in view of Tamura for the same reasons set forth in the rejection of claim 8.

Allowable Subject Matter

8. **Claims 32 and 50,** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding to **claim 32,** the prior art of record provided numerous examples of flags portion to determine status operation of computer program product, but failed to disclose or fairly suggest the specific combination of an event incomplete flag that can be set to indicate that data identified in the data portion extends beyond a buffer pointed to by a pointer maintained in the data portion.

Regarding to **claim 50,** the prior art of record provided numerous examples of memory to store a data structure, but failed to disclose or fairly suggest the specific combination of structural and functional limitations set forth in claim 50, specifically, the event byte count portion that identifies, if the data portion does not include the pointer to the chain of additional data structures, whether the data portion includes the audio data or a pointer to the data buffer.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Con P. Tran, whose telephone number is (703) 305-2341. The examiner can normally be reached on M - F (8:30 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Customer Service Office at telephone number (703) 306-0377.

cpt CPT
June 1, 2004

XU MEI
PRIMARY EXAMINER